CLAIMS

What is claimed:

1. A radiation projection detector for generating signals in response to a radiation beam, the detector comprising a first imager, the first imager having:

a conversion layer configured to generate light photons in response to a radiation;

a photo detector array aligned with the conversion panel, the photo detector array comprises a plurality of lines of detector elements, each of the detector elements configured to generate a signal in response to the light photons received from the conversion layer; and

an access circuit coupled to the photo detector array and configured to collect signals from two or more of the lines of detector elements simultaneously.

2. The detector of claim 1, wherein the first imager further having a signal processing circuit coupled to the access circuit and configured to generate image data using the signals received by the access circuit.

3. The detector of claim 1, wherein the access circuit is configured to collect signals from two of the lines of detector elements simultaneously.

4. The detector of claim 1, wherein the access circuit is configured to collect signals from four of the lines of detector elements simultaneously.

5. The detector of claim 1, further comprising a second imager positioned adjacent to the first imager.

6. The detector of claim 5, wherein an edge of the second imager is positioned below an edge of the first imager.

7. The detector of claim 5, wherein an edge of the second imager is positioned next to an edge of the first imager.

8. The detector of claim 5, wherein the access circuit is further configured to collect signals from two or more of the lines of detector elements of the second imager simultaneously.

9. The detector of claim 5, wherein the access circuit is further configured to collect signals from both the first and the second imagers simultaneously.

10. The detector of claim 1, wherein the plurality of lines of detector elements comprises a plurality of rows or columns of detector elements.

11. A radiation projection detector for generating signals in response to a radiation beam, the detector comprising a first imager, the first imager having:

a photoconductor layer configured to generate a charge in response to a radiation;

a detector array aligned with the photoconductor layer, the detector array comprises a plurality of lines of detector elements, each of which configured to generate a signal in response to the charge received from the photoconductor layer; and

an access circuit coupled to the detector array and configured to collect signals from two or more of the lines of detector elements simultaneously.

12. The detector of claim 11, wherein the first imager further having a signal processing circuit coupled to the access circuit and configured to generate image data using the signals received by the access circuit.

13. The detector of claim 11, wherein the access circuit is configured to collect signals from two of the lines of detector elements simultaneously.

14. The detector of claim 11, wherein the access circuit is configured to collect signals from four of the lines of detector elements simultaneously.

15. The detector of claim 11, further comprising a second imager positioned adjacent to the first imager.

16. The detector of claim 15, wherein an edge of the second imager is positioned below an edge of the first imager.

17. The detector of claim 15, wherein an edge of the second imager is positioned next to an edge of the first imager.

18. The detector of claim 15, wherein the access circuit is further configured to collect signals from two or more of the lines of detector elements of the second imager simultaneously.

19. The detector of claim 15, wherein the access circuit is further configured to collect signals from both the first and the second imagers simultaneously.

20. The detector of claim 11, wherein the plurality of lines of detector elements comprises a plurality of rows or columns of detector elements.

21. A radiation projection detector for generating signals in response to a radiation beam, the detector comprising:

a first imager;

a second imager; and

an access circuit configured to collect signals from the first imager and the second imager simultaneously.

22. The detector of claim 21, wherein an edge of the second imager is positioned below an edge of the first imager.

23. The detector of claim 21, wherein an edge of the second imager is positioned next to an edge of the first imager.

24. The detector of claim 21, wherein each of the first and second imagers comprises a conversion layer configured to generate light photons in response to a radiation.

25. The detector of claim 24, wherein each of the first and second imagers further comprises:

a photo detector array aligned with the conversion panel, the photo detector array comprises a plurality of lines of detector elements, each of which configured to generate a signal in response to the light photons received from the conversion layer;

wherein the access circuit is coupled to the photo detector array of each of the first and second imagers.

26. The detector of claim 25, wherein the access circuit is configured to collect signals from one line of the detector elements of each of the first and second imagers at a time.

27. The detector of claim 25, wherein the access circuit is configured to collect signals from more than one line of the detector elements of each of the first and second imagers at a time.

28. The detector of claim 21, wherein each of the first and second imagers comprises a photoconductor layer configured to generate a charge in response to a radiation.

29. The detector of claim 28, wherein each of the first and second imagers further comprises:

a detector array aligned with the photoconductor layer, the detector array comprises a plurality of lines of detector elements, each of which configured to generate a signal in response to the charge received from the photoconductor layer;

wherein the access circuit is coupled to the detector array of each of the first and second imagers.

30. The detector of claim 29, wherein the access circuit is configured to collect signals from the detector elements of each of the first and second imagers one line at a time.

31. The detector of claim 29, wherein the access circuit is configured to collect signals from the detector elements of each of the first and second imagers more than one line at a time.

32. A method for collecting signals from a detector, the detector having a plurality of lines of image elements, each of which having a transistor gate, the method comprising:

sending a control signal to a gate driver to select transistor gates for two or more lines of image elements from which signals are to be collected; and

simultaneously passing signals from the two or more lines of image elements to charge amplifiers that are coupled to the image elements.

33. The method of claim 32, further comprising generating the signals.

34. The method of claim 33, wherein the generating the signals comprises:

receiving an x-ray radiation;

generating photons in response to at least a portion of the x-ray radiation; and

producing the signals in response to the photons.

35. The method of claim 33, wherein the generating the signals comprises:

receiving an x-ray radiation;

generating electron-hole-pairs in response to at least a portion of the x-ray radiation; and

producing the signals in response to the electron-hole-pairs.

36. A computer readable medium having a set of stored instructions, the execution of which causes a process for collecting signals from a detector to be performed, the detector having a plurality of lines of image elements, each of the image elements having a transistor gate, the process comprising:

sending a control signal to a gate driver to select transistor gates for two or more lines of image elements from which signals are to be collected; and

simultaneously passing signals from the two or more lines of image elements to charge amplifiers that are coupled to the image elements.

37. The computer readable medium of claim 36, wherein the process further comprising generating the signals.

38. The computer readable medium of claim 37, wherein the generating the signals comprises:

receiving an x-ray radiation;

generating photons in response to at least a portion of the x-ray radiation; and

producing the signals in response to the photons.

39. The computer readable medium of claim 37, wherein the generating the signals comprises:

receiving an x-ray radiation;

generating electron-hole-pairs in response to at least a portion of the x-ray radiation; and

producing the signals in response to the electron-hole-pairs.

40. A system for collecting signals from a detector, the detector having a plurality of lines of image elements, each of which having a transistor gate, the system comprising:

means for sending a control signal to a gate driver to select transistor gates for two or more lines of image elements from which signals are to be collected; and

means for simultaneously passing signals from the two or more lines of image elements to charge amplifiers that are coupled to the image elements.

41. A method for collecting signals from a detector, the detector having a plurality of imagers, each of the imagers having a plurality of lines of image elements, the method comprising:

sending a control signal to a gate driver to select one or more lines of image elements on each of the plurality of the imagers from which signals are to be collected; and

simultaneously passing signals from the selected one or more lines of image elements on each of the plurality of the imagers to charge amplifiers that are coupled to the image elements.

42. The method of claim 41, wherein each of the plurality of imagers comprises a flat panel imager.

43. The method of claim 41, wherein the sending comprises sending a control signal to a gate driver to select one line of image elements on each of the plurality of the imagers.

44. The method of claim 41, wherein the sending comprises sending a control signal to a gate driver to select a plurality of lines of image elements on each of the plurality of the imagers.

45. The method of claim 44, wherein the plurality of lines of image elements comprises four lines of image elements.

46. The method of claim 41, further comprising generating the signals.

47. The method of claim 46, wherein the generating the signals comprises:

receiving an x-ray radiation;

generating photons in response to at least a portion of the x-ray radiation; and

producing the signals in response to the photons.

48. The method of claim 46, wherein the generating the signals comprises:

receiving an x-ray radiation;

generating electron-hole-pairs in response to at least a portion of the x-ray radiation; and

producing the signals in response to the electron-hole-pairs.

49. A computer readable medium having a set of stored instructions, the execution of which causes a process for collecting signals from a detector to be performed, the detector having a plurality of imagers, each of the imagers having a plurality of lines of image elements, the process comprising:

sending a control signal to a gate driver to select one or more lines of image elements on each of the plurality of the imagers from which signals are to be collected; and

simultaneously passing signals from the selected one or more lines of image elements on each of the plurality of the imagers to charge amplifiers that are coupled to the image elements.

50. A system for collecting signals from a detector, the detector having a plurality of imagers, each of the imagers having a plurality of lines of image elements, the system comprising:

means for sending a control signal to a gate driver to select one or more lines of image elements on each of the plurality of the imagers from which signals are to be collected; and

means for simultaneously passing signals from the selected one or more lines of image elements on each of the plurality of the imagers to charge amplifiers that are coupled to the image elements.